

Barriers of Digital Technology Adoption in Tanzanian Retail SMEs: Role of Perceived Risk, Trust and Price Value

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Abstract

Digital technologies help sectors digitise their processes, enabling the production of high-quality products and digital services while improving customer knowledge. Despite these advantages, various factors hinder small and medium-sized enterprises (SMEs) from successfully achieving digital transformation. This study aims to evaluate the main challenges that hinder retail SMEs in Tanzania from adopting digital technologies. The study uses the expanded Unified Theory of Acceptance and Use of Technology (UTAUT) model, which includes perceived risk, Trust, and Price value. The quantitative methodology was used to gather data from 335 SME owners, managers, and directors. The collected data were then analysed using Partial Least Squares- Structural Equation Modelling (PLS-SEM). The study results indicate that the adoption of digital technologies is significantly influenced by the key UTAUT factors, particularly Performance Expectancy and Facilitating Conditions. Also, the study found that the added factors, perceived risk, trust, and price value, hindered adoption intentions. This shows that retail SMEs are hesitant to adopt digital technologies due to high costs, poor infrastructure, and limited employee knowledge of how to use them. Thus, for SMEs to adopt and use digital technologies, policymakers and developers should focus on making digital technologies more affordable and personalised, building Trust, and improving digital skills and infrastructure.

Keywords: SMEs, Tanzania, UTAUT, Perceived Risk, Price Value, Trust, Barriers

1.0 Introduction

The growth of digital technologies has changed how businesses operate. Digital technologies offer several advantages, including making businesses more competitive and efficient and enabling them to reach more customers (Nyamwesa, 2025; Olorunyomi Stephen Joel et al., 2024; Omol, 2024). In this regard, small and medium-sized enterprises (SMEs) need to use digital technologies to succeed. Despite these benefits, few small- and medium-sized retail businesses in Tanzania have adopted and are using digital technologies (Chicha & Phiri, 2024; Jallouli et al., 2023; Mushi, 2024). Thus, stakeholders in digital technologies ought to grasp the challenges hindering their adoption and use.

The adoption of digital technologies remains low among many retail SMEs in developing countries such as Tanzania (Jallouli et al., 2023; Nyamwesa, 2025). Low adoption is due to various factors, including a lack of funding, unreliable digital platforms, doubts about data security, low levels of digital literacy, and concerns about their benefits (Achieng & Malatji, 2022; Tongora, 2022). The poor socioeconomic conditions also hinder the adoption of digital technologies in developing countries. These factors raise perceived risks and diminish trust in the adoption of digital technologies.

This study aims to assess the factors that hinder the adoption of digital technologies among SMEs in developing countries, particularly in Tanzania. The study was conducted using the extended Unified Theory of Acceptance and Use of Technology (UTAUT) model, which includes perceived risk, trust, and price value. The UTAUT model is one of the most widely used models for assessing factors influencing technology adoption (Apau et al., 2025; Bhatnagr & Rajesh, 2024; Khayer et al., 2021). The model presents four main factors: performance expectancy, effort expectancy, social influence, and facilitating conditions (Nyamwesa, 2025; Tonya & Samwel, 2025). The study used the UTAUT model,

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which includes three additional factors: perceived risk, trust, and price value. These factors are believed to be important in the decision to adopt digital tools in Tanzanian retail SMEs (Ishengoma & John, 2025; Nkwabi & Mboya, 2019). The UTAUT model is considered suitable for this study, as it identifies the specific factors influencing technology adoption in SMEs, particularly in Tanzania (Nyamwesa, 2025; Tonya & Samwel, 2025).

2.0 Literature Review

The study reviews the current literature discussing the adoption of digital technologies worldwide. (Arroyabe et al., 2024; Hussain & Rizwan, 2024). Then the focus was on Small and Medium-sized Enterprises (SMEs) in developing countries, particularly Tanzania. The study explores the conceptual issues of digital technologies and the critical role of SMEs in the Tanzanian economy. Also, the main technology adoption models were examined, and the study concludes with a detailed study of the Unified Theory of Acceptance and Use of Technology (UTAUT). It further justifies the extension of the UTAUT model with perceived risk, trust, and cost factors, which are suggested as critical barriers in the Tanzanian context. Finally, the study summarises the literature, identifies the research gap, and establishes the conceptual foundation for this study.

2.1 Digital Technologies and SMEs in Tanzania

Small and medium-sized enterprises (SMEs) serve as crucial business contributors in many developing economies. (Mushi, 2024; Nyamwesa, 2025; Tonya & Samwel, 2025). This is because SMEs employ the majority of the workforce and play an important role in value creation and supply chains. Unlike SMEs, larger businesses tend to adopt digital technologies more effectively due to their greater access to resources. Thus, SMEs often require a more risk-taking mindset to balance their benefits and resource limitations. Digital technologies help SMEs to improve their productivity, competitiveness, and survival in the digital economy. Despite different efforts made by the government and private sectors encouraging digital inclusion and entrepreneurship, many Tanzanian SMEs are still slow to adopt digital technology. (Nyamwesa, 2025; Restrepo-Morales et al., 2024; Tonya & Samwel, 2025) This condition raises concerns about the adoption of digital technologies and their potential. The objective of this study is to evaluate the main challenges hindering the adoption of digital technology by retail SMEs in Tanzania.

2.1.1 Digital Technologies in Retail Sectors

Various digital technologies help retailers modernise their businesses and reach a wider customer base (Bamidele Micheal Omowole et al., 2024; Nyamwesa, 2025). These tools include e-commerce platforms, mobile payment systems, digital marketing, and inventory management solutions. Also, these tools help SME retailers improve efficiency, reduce costs, and offer different shopping experiences to customers (Achieng & Malatji, 2022; Nkwabi & Mboya, 2019).

Digital technologies also facilitate stronger customer engagement and loyalty through social media. The use of Mobile applications and online shops provides consumers with the convenience of shopping anytime, anywhere, which is especially important in today's digital world. Also, the use of digital technologies helps SME retailers gather important information that improves their businesses and keeps them competitive, thereby enhancing customer satisfaction (Ibrahim & Aduah, 2025; Restrepo-Morales et al., 2024).

SMEs can also improve their businesses by using emerging technologies such as artificial intelligence, big data, and automation (Arroyabe et al., 2024; Hussain & Rizwan, 2024). The use of these technologies allows SMEs to easily reach customers and enhance their operations (Badghish & Soomro, 2024; Hussain & Rizwan, 2024). Thus, the use of digital technologies helps retail SMEs adopt these innovations effectively, respond to market changes, improve service quality, and achieve sustainable growth in an increasingly digital economy (Apostoaie et al., 2025; Krismajayanti et al., 2024).

2.1.2 Tanzania's SME Landscape

SME businesses in Tanzania are an important source of economic growth and employment (Mushi, 2024; Nyamwesa, 2025; Tonya & Samwel, 2025). This results in a significant portion of the country's

businesses and livelihoods, as it does worldwide. There are different sectors in SME businesses, including trade, manufacturing, agriculture, and retail. Various problems limit Tanzanian SMEs from improving their development and productivity (Nyamwesa, 2025; Tongora, 2022). These problems include lack of funding, poor infrastructure, high competition, and a lack of proper business skills (Badghish & Soomro, 2024; Hussain & Rizwan, 2024; Tonya & Samwel, 2025). Problems for many Tanzanian SMEs are exacerbated by informal operations, which restrict their access to credit, government support, and larger markets (Badghish & Soomro, 2024; Hussain & Rizwan, 2024).

Currently, several initiatives to support SME development have been introduced by the Tanzanian government and development partners (Ishengoma & John, 2025; Mushi, 2024; Nyamwesa, 2025). Some of these initiatives include encouraging business registration, offering entrepreneurship training, and improving access to funding. However, the effectiveness of these initiatives is limited by various issues, including low financial literacy and monitoring challenges (Hussain & Rizwan, 2024; Jallouli et al., 2023; Tonya & Samwel, 2025). Most SMEs in Tanzania use only basic digital technologies, such as mobile communication and money services (Ishengoma & John, 2025; Nyamwesa, 2025; Tongora, 2022). As a result, many SMEs operate within the informal sector, which affects their ability to improve and contribute more effectively to national development. Therefore, it is important to understand the problems hindering the adoption of digital technologies in this specific retail SME context.

2.2 Theoretical Perspective

To determine the key factors influencing the adoption of digital technologies in developing countries, specifically in Tanzania, this study uses the extended UTAUT model, which includes perceived risk, trust, and price value. The UTAUT model comprises eight leading models used in previous studies to examine technology adoption and value (Almaiah et al., 2022; Bhatnagr & Rajesh, 2024; Namahoot & Jantasri, 2023). The original UTAUT model consists of four factors that explain how individuals adopt technology (Venkatesh et al., 2003). The attributes of the technology are presented by Performance expectancy and effort expectancy factors, while the contextual or organisational factors that affect user behaviour are assessed by social influence and facilitating conditions factors (Chicha & Phiri, 2024; Dwivedi et al., 2017; Khayer et al., 2021). An identified limitation of the original UTAUT model is its failure to incorporate certain individual user behaviours, such as attitude, risk, trust, security, and privacy (Apau et al., 2025; Bhatnagr & Rajesh, 2024; Dwivedi et al., 2019).

To address personal concerns, Dwivedi et al. (2019) expanded the original UTAUT model by adding attitude as a personal factor. However, adding an individual's attitude alone is insufficient without considering the perceived risks, trust, and price value they may face. Based on the improved performance of the models with the addition of Attitude and the absence of individual constructs in the UTAUT framework, this study suggests incorporating perceived risks, trust, and price value as more variables in the proposed model. Existing literature presents the implications of the three factors separately, but not all three together (Almaiah et al., 2022; Bhatnagr & Rajesh, 2024; Namahoot & Jantasri, 2023).

Therefore, this study extends the UTAUT model proposed by Dwivedi et al. (2019) by adding perceived risks, trust, and price value as additional factors hindering the adoption of digital technologies, as shown in Figure 1. This is because the adoption and use of digital technologies may also be attributed to individual perceptions of risk, trust, and price-value. The perceived risks might include the risk of losing privacy, fraud, violation of privacy policy, misinterpretation of data, and data inaccuracy.

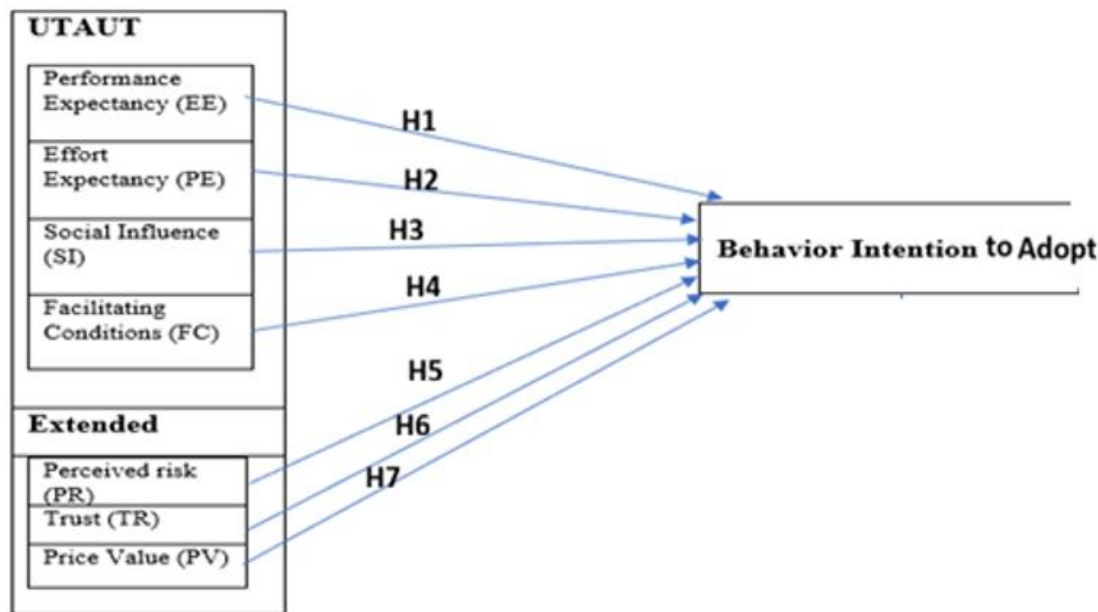


Figure 1. Conceptual Framework of the Study

2.3 Hypotheses Formulation

2.3.1 Performance Expectancy

Performance expectancy is one of the factors used to adopt a certain technology. (Badghish & Soomro, 2024; Saghiri et al., 2022). It presents how SME owners believe that implementing digital technologies will improve their business performance, such as increasing sales, improving operational efficiency, or expanding their market presence. The study finds that SME owners are more likely to adopt the technologies once they understand that digital tools can provide benefits and improve their business outcomes. Thus, the study formulates the hypothesis:

2.3.2 Effort Expectancy

Effort expectancy represents how simple and easy to use the digital technologies are (Bhatnagr & Rajesh, 2024; Namahoot & Jantasri, 2023). There are various factors presented in the literature that have enhanced the understanding of effort expectancy. (Kwarteng et al., 2024; Mookerjee, & Rajkumar, 2024). The main factors of the effort expectancy construct include perceived ease of use, complexity of the technology, and user-friendliness. (Namahoot & Jantasri, 2023; Mookerjee, & Rajkumar, 2024). This study posits that users' intention to adopt digital technologies depends on their usability. To reduce the complexity of digital technology tools, user-friendly systems and adequate training should be provided:

H2: Effort expectancy has a positive relationship with the behavioural intention of adopting and using digital technologies.

2.3.3 Social Influence

Social influence is one of the constructs of the UTAUT model that is believed to affect the adoption and usage of digital technologies by Tanzanian retail SMEs (Mer & Virdi, 2023; Namahoot & Jantasri, 2023). It presents how views of colleagues, customers, suppliers, or industry leaders affect their adoption of technology. This study suggests that the opinions of close contacts can significantly influence an individual's adoption and use of digital technologies.

H3: Social influence has a positive relationship with the behavioural intention of using digital technologies.

2.3.4 Facilitating Conditions

Facilitating conditions refer to the extent to which individuals perceive that technical support is accessible to help them utilise digital technologies. (Bhatnagr & Rajesh, 2024; Mookerjee & Rajkumar, 2024). There are different results from the literature regarding the influence of the facilitating factors on the adoption of digital technologies. (Kumar & Krishnamoorthy, 2020; Namahoot & Jantasri, 2023). The results vary depending on the specific context of each study. Therefore, this study presents hypotheses concerning the effect of facilitating conditions on the intention to use digital technologies as follows:

H4: Facilitating conditions have a positive relationship with the behavioural intention to use digital technologies.

2.3.5 Perceived Risk

Perceived risk refers to users' doubts about adopting digital technologies. A limited number of studies have examined the perceived risk of adopting digital technologies across areas such as academia, healthcare, and business (Apau et al., 2025; Bhatnagr & Rajesh, 2024; Kumar et al., 2023). In the context of SMEs, this study posits that adoption decisions regarding the use of digital technologies may also be based on users' doubts about financial, performance, and privacy and security risks. Therefore, in this study, the perceived risk will be used to measure the potential concerns and doubts users face when interacting with digital technologies. The hypotheses based on the perceived risk are stated as follows;

H5: Perceived risk has a negative relationship with the behavioural intention of using digital technologies

2.3.6 Trust

In digital technology adoption, trust refers to users' beliefs in technology, its providers, and the regulatory environment (Kumar et al., 2023; Mer & Virdi, 2023). Trust occurs when stakeholders are reliable, competent, and care about users (Ishengoma & John, 2025). For Tanzanian SME owners and managers, a lack of trust can be a significant barrier. Trust presents itself in technology, vendors, and the ecosystem. Thus, the study formulates the hypothesis:

H6: Trust has a positive and relationship with the behavioural intention to use digital technologies.

2.3.7 Price Value

SME owners and managers also consider the cost of digital technologies or services when deciding whether to adopt them (Almaiah et al., 2022). They prefer affordable digital technologies when deciding whether to adopt new digital tools. This is because price value is particularly significant due to limited financial resources and competing priorities. The likelihood of adoption increases when the perceived benefits and effects of the technology outweigh the costs. The cost of the technology considered includes initial investment, subscription fees, or maintenance expenses. Thus, the study formulates the hypothesis:

H7: Price value has a negative relationship with the behavioural intention of using digital technologies.

2.4 Research Gap

Extant literature underscores clearly the importance of digital technologies for the growth of SMEs. Moreover, the UTAUT model is the most widely used model for understanding factors hindering the adoption of digital technologies (Chicha & Phiri, 2024; Khayer et al., 2021; Kwarteng et al., 2024). However, there are few studies on the use of this model in specific sectors, such as retail SMEs in Tanzania. Most existing studies focus on basic digital technologies such as mobile money and e-government from consumers' perspectives, rather than from owners' and managers' perspectives

(Ishengoma & John, 2025; Mushi, 2024; Nyamwesa, 2025).

There are few studies investigating barriers to advanced digital technologies in SMEs, such as point-of-sale systems, inventory management software, and e-commerce, within the retail SME sector, with a strong theoretical foundation (Apostoaie et al., 2025; Hussain & Rizwan, 2024). Also, the study found that while the core UTAUT constructs are relevant, they alone are not sufficient to fully capture the significant influence of Perceived Risk, Trust, and price value in the SME context. Thus, this study aims to address this gap by suggesting an extended UTAUT model that includes the three additional constructs. The study identifies more specific problems with the adoption of digital technologies in Tanzania's SME sector.

3.0 Research Methodology

3.1 Research Design

The study used a quantitative approach to assess the factors hindering the adoption of digital technologies in SMEs in Tanzania. Data were gathered using a closed-ended questionnaire administered to SME owners, directors, and managers. The questionnaire is divided into three main parts: the first part collects demographic information about the study participants. The second part presents the concept of digital technologies and outlines the study's purpose. The final section includes measurement items, originally found from prior studies and slightly modified to suit the current context. Four items were specifically designed to assess each measurement item.

3.2 Sample Size and Sampling

The target population for this study comprised retail SMEs operating within major urban centres in Tanzania, including Dar es Salaam, Dodoma, and Arusha. These are among the Tanzanian cities where digital government initiatives are implemented and used, and where socioeconomic and institutional diversity is evident. The study applied the inverse-square-root method, which recommends a minimum sample size of 287 (Kock & Hadaya, 2018). Furthermore, convenience and snowball sampling techniques were used to identify retail SMEs that could respond to the questionnaire, given the difficulties and costs of obtaining a complete list of physical retail SMEs (Ponchio et al., 2021). For each identified SME, the owners, directors, and managers were further consulted and asked to complete the questionnaire as representatives of the SMEs. The SME owners, directors, and managers were considered appropriate given their managerial roles. The study collected 350 survey responses, and after removing missing values, the final sample comprised 335 respondents.

Table 1. Respondents' characteristics

Dimension	Items
Position (%)	Owner / Founder (92); Managing Director (80); General Manager (81); Supervisor (82)
Retail category (%)	Food & Groceries (Supermarket, Mini-market, Kiosk) (87); Clothing, Textiles & Footwear (72); Electronics & Appliances (65); Hardware & Building Materials (53); Pharmacy / Cosmetics / Beauty products (58)
Company Size (%)	50-99 (94), 10-49 (136), or less than 10 employees (105)

3.3 Data Collection Methods

The study applied a structured online questionnaire created based on validated scales from the literature, specifically Venkatesh et al. (2003), for the core UTAUT constructs. Information from related studies was modified to include additional factors: perceived risk, trust, and price value (Bhatnagar & Rajesh, 2024; Mookerjee & Rajkumar, 2024). The study applies a 5-point Likert scale in the questionnaire items to measure respondents' degrees of agreement with each construct (Badghish & Soomro, 2024; Chicha & Phiri, 2024). To ensure clarity, relevance, and reliability, the questionnaire was first tested with a small sample. The questionnaire was then updated based on feedback from the small sample of participants. The study collected data using face-to-face interviews and online questionnaires. The

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technique to be used was based on respondents' preferences and accessibility. The study also adheres to ethical guidelines by obtaining respondents' permission and ensuring the confidentiality of their information.

3.4 Data Analysis

The study used the SMART-PLS 4 software to perform Partial Least Squares Structural Equation Modelling (PLS-SEM). The use of this method helps in assessing the relationships among multiple variables (Ramayah et al., 2018). The analysis of the collected data was conducted using a two-step process: first, assessing the measurement and structural models, and then evaluating the framework's validity and reliability through path analysis (Badghish & Soomro, 2024; Mushi, 2024).

4.0 Findings and Discussion

4.1 Findings

The factor loadings of all items in this study are greater than 0.7, indicating strong reliability and validity of the variables, as shown in Table 2. The factors also show adequate composite reliability and Average Variance extracted (AVE) scores. Also, using the Fornell-Larcker and HTMT criteria, Discriminant validity was confirmed, ensuring that the factors were distinct and correctly measured the adoption of digital technologies (Bhatnagr & Rajesh, 2024; Chicha & Phiri, 2024).

4.2 Demographic Information

This segment covers the respondents' demographics, comprising five subgroups: gender, age, level of education, period of Tausi usage, and job category. These characteristics would provide background on participants, their experiences, and perceptions; all could greatly affect research results and assessments.

Table 2. Measurement Model Assessment

Construct	Items	Factor loadings	VIF	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
BI	BI1	0.766	1.154	0.767	0.772	0.530
	BI2	0.708	1.15			
	BI3	0.708	1.26			
EE	EE1	0.759	1.468	0.780	0.860	0.672
	EE2	0.852	1.618			
	EE3	0.845	1.537			
FC	FC1	0.859	1.571	0.775	0.865	0.671
	FC2	0.804	1.477			
	FC3	0.793	1.54			
PE	PE1	0.803	2.655	0.771	0.862	0.679
	PE2	0.957	2.003			
	PE3	0.769	2.023			
SI	SI1	0.962	1.898	0.855	0.876	0.705
	SI2	0.798	2.742			
	SI3	0.838	2.962			
PR	PR1	0.722	1.008	0.846	0.726	0.544
	PR2	0.799	1.055			
	PR3	0.718	1.059			
PV	PV1	0.906	1.703	0.794	0.753	0.539
	PV2	0.817	1.013			

Construct	Items	Factor loadings	VIF	Cronbach's alpha	Composite reliability (CR)	Average variance extracted (AVE)
TR	PV3	0.875	1.705	0.790	0.773	0.718
	TR1	0.727	1.006			
	TR2	0.834	1.009			
	TR3	0.711	1.007			

Key: Behaviour Intention: BI; Effort Expectancy: EE; Facilitating Condition: FC; Performance Expectancy: PE; Social Influence: SI; Perceived Risk: PR; Price Value: PV; Trust: TR

Table 3 summarises the path coefficients for the structural model. The perceived risk construct has the most significant influence on intention to use digital technologies, with a value of 0.54, followed by Trust at 0.397, price value at 0.309, facilitating conditions at 0.259, and performance expectancy at 0.234. Unexpectedly, the social influence and expected effort factors were small, at 0.02 and 0.037, respectively. Bootstrapping analysis shows that the effects of perceived risk, trust, price value, facilitating conditions, and performance expectancy are statistically significant. In contrast, social influence and expected effort do not significantly affect intentions to use digital technologies. The model accounts for 54% of the variance in intention to use digital technologies ($R^2 = 0.548$), as shown in Figure 1.

Table 3. Structural Model Assessment

Hypotheses	Relationships	Path Coefficient (β)	t-values	p-values	Remarks
H1	PE -> BI	0.234	4.840	0.000	Supported
H2	EE -> BI	0.037	1.000	0.159	Not Supported
H3	SI -> BI	0.020	0.503	0.308	Not Supported
H4	PV-> BI	-0.309	5.156	0.000	Supported
H5	FC -> BI	0.259	5.814	0.000	Supported
H6	PR -> BI	-0.540	7.665	0.000	Supported
H7	TR -> BI	0.397	2.056	0.002	Supported

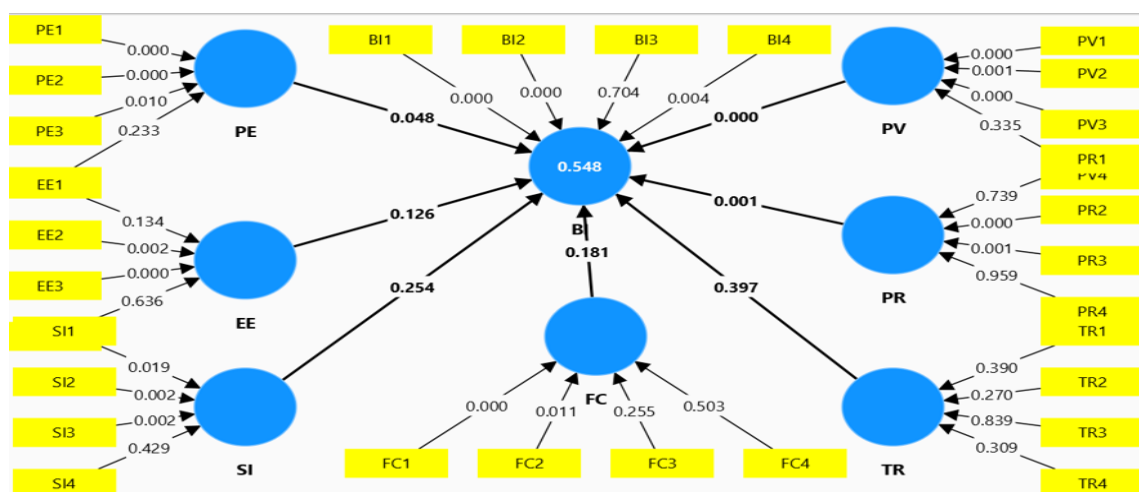


Figure 2. The value of R^2 , t- and p-values of the model

5.0 Discussion

The extended UTAUT model explains 54% of the variance in the barriers hindering Tanzanian SMEs from adopting digital technologies. This indicates a moderate-to-strong descriptive capacity in the Tanzanian SME context (Bhatnagar & Rajesh, 2024; Chicha & Phiri, 2024). The addition of perceived risk, Trust, and price value contributes to understanding the specific barriers faced by Tanzanian SMEs. This might be due to limited resources and an undefined market environment in which SMEs operate (Mookerjee & Rajkumar, 2024; Namahoot & Jantasri, 2023).

The study found that performance expectancy and facilitating conditions influence behavioural intention to adopt digital technologies, consistent with most existing studies (Apau et al., 2025; Bhatnagr & Rajesh, 2024). Thus, learning and training in digital technologies should be enhanced to enable SMEs to adopt them. Also, technological infrastructure should be improved to foster an environment conducive to the adoption of digital technologies among SMEs (Bhatnagr & Rajesh, 2024; Namahoot & Jantasri, 2023). Moreover, the study found that effort expectancy and social influence showed low effects on SMEs' behavioural intentions to adopt digital technologies. This suggests that others' opinions and perceived ease of use are less important in the SME context (Badghish & Soomro, 2024; Mushi, 2024). This might be due to the individual decision-making nature of the SME owners, managers, and directors on the adoption of digital technologies (Mushi, 2024; Nkwabi & Mboya, 2019).

Furthermore, the results on perceived risk (PR) indicate that it is one of the most important factors that negatively affect behavioural intention to adopt digital technologies (Chicha & Phiri, 2024; Nyawesa, 2025). The perceived risks include concerns about data security, financial loss, and operational problems that hinder the adoption of digital technology among SMEs in developing countries (Kumar et al., 2023; Olorunyomi Stephen Joel et al., 2024). High perceived risks among SMEs in Tanzania stem from limited awareness of digital technologies, poor infrastructure, and fears of cyber threats (Nyamwesa, 2025; Tonya & Samwel, 2025). The study indicates that perceived risk can be reduced by enhancing cybersecurity protections, implementing clear data privacy policies, and providing help in minimising risks. Thus, policymakers and technology providers should include risk-reduction methods in the SME context.

Additionally, the study found that trust (TR) is another important factor hindering adoption of digital technologies among SMEs in Tanzania. This is due to doubt about new digital technologies among SMEs in Tanzania (Apau et al., 2025; Ishengoma & John, 2025; Mer & Virdi, 2023). SME owners are more likely to adopt digital technologies when they believe vendors and service providers are reliable and that their data and transactions are secure (Badghish & Soomro, 2024; Mushi, 2024). These results emphasise the need to establish reliable stakeholders who would ensure reliable service quality.

This study also shows that the perceived value (PV) of digital technologies is an important factor in their adoption among SMEs in Tanzania (Almaiah et al., 2022; Olorunyomi Stephen Joel et al., 2024). This might be due to limited financial resources, which make many Tanzanian SMEs cost-sensitive (Mushi, 2024; Nkwabi & Mboya, 2019; Nyamwesa, 2025). Therefore, SMEs in Tanzania are more likely to adopt digital technologies when they believe that they are beneficial to them. Thus, to motivate the adoption of digital technologies among SMEs in Tanzania, vendors and policymakers should emphasise the benefits of adoption.

The results show that the following key areas should be considered to improve digital adoption among Tanzania's SMEs: lowering perceived risk to increase users' willingness to adopt digital technologies (Bhatnagar & Rajesh, 2024; Kumar et al., 2023). Thus, service providers should ensure reliable services to improve users' beliefs. Second, SMEs can easily adopt low-cost digital technologies, so the government and service providers should take measures to reduce their costs (Almaiah et al., 2022; Olorunyomi Stephen Joel et al., 2024). Lastly, in Tanzania, there is limited training and technical assistance among SMEs, which creates unfavourable conditions for adoption, as found by Chicha & Phiri (2024) and Ishengoma & John (2025).

6.0 Conclusion and Recommendations

This study assesses the contextual barriers hindering the adoption of digital technologies in Tanzanian retail SMEs using the extended UTAUT model, which includes perceived risk, trust, and price value.

The analysis shows that perceived risk, trust, and price value are the most significant factors affecting users' intentions to adopt digital technologies. This shows that the adoption of digital technologies would increase when the technology is safe and cheap. High perceived risks and a lack of trust cause users to worry about cost, performance, and safety. Also, poor facilitating conditions, such as unreliable electricity and internet connections, hinder adoption of digital technologies.

Based on the findings of this study, it is recommended that multiple stakeholders participate in efforts to enhance digital adoption in Tanzania. The government should enhance cybersecurity and data protection frameworks to reduce perceived risk and increase trust in digital technologies among SMEs in Tanzania. Service providers should provide secure, reliable, and affordable digital technologies. Financial institutions should introduce various financial schemes to lower the cost of adopting digital technologies. Also, they should invest in digital infrastructure, including reliable electricity and internet connectivity. SME owners and managers should invest in training their employees to increase their capacity to use digital technologies. These measures would help SMEs in Tanzania to avoid the barriers identified in this study and increase the adoption of digital technologies.

References

- Achieng, M. S., & Malatji, M. (2022). Digital transformation of small and medium enterprises in sub-Saharan Africa: A scoping review. *The Journal for Transdisciplinary Research in Southern Africa*, 18(1), 1–13. <https://doi.org/10.4102/td.v18i1.1257>
- Almaiah, M. A., Al-Rahmi, A. M., Alturise, F., Alrawad, M., Alkhalaf, S., Lutfi, A., Al-Rahmi, W. M., & Awad, A. B. (2022). Factors influencing the adoption of internet banking: An integration of ISSM and UTAUT with price value and perceived risk. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.919198>
- Apau, R., Titus, E., & Lallie, H. S. (2025). Towards a Better Understanding of Mobile Banking App Adoption and Use: Integrating Security, Risk, and Trust into UTAUT2. *Computers*, 14(4). <https://doi.org/10.3390/computers14040144>
- Apostoaie, C. M., Roman, T., Maxim, A., & Jijie, D. T. (2025). Determinants of AI Adoption Intention in SMEs: Romanian case study. *Journal of Business Economics and Management*, 26(2), 277–296., 26.
- Arroyabe, M. F., Arranz, C. F. A., Fernández de Arroyabe, I., & Fernández de Arroyabe, J. C. (2024). Analysing AI adoption in European SMEs: A study of digital capabilities, innovation, and external environment. *Technology in Society*, 79(November 2023), 102733. <https://doi.org/10.1016/j.techsoc.2024.102733>
- Badghish, S., & Soomro, Y. A. (2024). AI adoption by SMEs to achieve sustainable business performance. *Sustainability*, 16(5), 1–24.
- Bamidele Michael Omowole, Amarachi Queen Olufemi-Phillips, Onyeka Chrisanctus Ofodile, Nsiong Louis Eyo-Udo, & Somto Emmanuel Ewim. (2024). Barriers and drivers of digital transformation in SMEs: A conceptual analysis. *International Journal of Scholarly Research in Science and Technology*, 5(2), 019–036. <https://doi.org/10.56781/ijrst.2024.5.2.0037>
- Bhatnagar, P., & Rajesh, A. (2024). Neobanking adoption – An integrated UTAUT-3, perceived risk and recommendation model. *South Asian Journal of Marketing*, 5(2), 93–112. <https://doi.org/10.1108/sajm-06-2022-0040>
- Chicha, M., & Phiri, J. (2024). Factors Influencing the Adoption of E-Marketing in the Tourism Industry by SMEs in Developing Countries Based on UTAUT Model. *Open Journal of Business and Management*, 12(01), 521–539. <https://doi.org/10.4236/ojbm.2024.121032>
- Dwivedi, Y. K., Rana, N. P., Janssen, M., Lal, B., Williams, M. D., & Clement, M. (2017). An empirical validation of a unified model of electronic government adoption (UMEGA). *Government Information Quarterly*, 34(2), 211–230. <https://doi.org/10.1016/j.giq.2017.03.001>
- Dwivedi, Y. K., Rana, N. P., Jeyaraj, A., Clement, M., & Williams, M. D. (2019). Re-examining the Unified Theory of Acceptance and Use of Technology (UTAUT): Towards a Revised Theoretical Model. *Information Systems Frontiers*, 21(3), 719–734. <https://doi.org/10.1007/s10796-017-9774-y>
- Hussain, A., & Rizwan, R. (2024). *Strategic AI adoption in SMEs: A Prescriptive Framework*.
- Ibrahim, M., & Aduah, E. W. (2025). Digital literacy, digital intelligence and small and medium enterprises' (SMEs) sustainability: The mediating role of digital technology usage. *Information Development*. <https://doi.org/10.1177/02666669251335001>

- Ishengoma, F., & John, E. (2025). Factors influencing the adoption of mobile-based AI services in Tanzanian manufacturing SMEs. *Vilakshan - XIMB Journal of Management*, 22(2), 234–252. <https://doi.org/10.1108/xjm-11-2023-0214>
- Jallouli, I. R., Anis, M., Tobji, B., Belkhir, M., Soares, A. M., Casais, B., Economy, D., & Technologies, E. (2023). *Barriers to Digital Transformation in SMEs : A Quantitative Study. Digital transformation (DT) brings significant and universal contributions to enterprises.* 3–17.
- Khayer, A., Jahan, N., Hossain, M. N., & Hossain, M. Y. (2021). The adoption of cloud computing in small and medium-sized enterprises: a developing-country perspective. *VINE Journal of Information and Knowledge Management Systems*, 51(1), 64–91. <https://doi.org/10.1108/VJIKMS-05-2019-0064>
- Krismajayanti, N. P. A., Darma, G. S., Mahyuni, L. P., & Martini, I. A. O. (2024). Drivers, Barriers and Key Success of Digital Transformation on SMEs: A Systematic Literature Review. *Journal of Accounting and Strategic Finance*, 7(1), 158–180. <https://doi.org/10.33005/jasf.v7i1.505>
- Kumar, A., & Krishnamoorthy, B. (2020). Business Analytics Adoption in Firms: A Qualitative Study Elaborating TOE Framework in India. *International Journal of Global Business and Competitiveness*, 15(2), 80–93. <https://doi.org/10.1007/s42943-020-00013-5>
- Kwarteng, M. A., Ntsiful, A., Diego, L. F. P., & Novák, P. (2024). Extending UTAUT with competitive pressure for SMEs digitalisation adoption in two European nations: a multi-group analysis. *Aslib Journal of Information Management*, 76(5), 842–868. <https://doi.org/10.1108/AJIM-11-2022-0482>
- Mer, A., & Viridi, A. S. (2023). Modelling Millennials' Adoption Intentions of E-banking: Extending UTAUT with Perceived Risk and Trust. *FIIB Business Review*, 12(4), 425–438. <https://doi.org/10.1177/23197145211052614>
- Mookerjee, J., & Rajkumar, M. (2024). Analysing Factors Influencing Technology Adoption Among Unorganised Retailers Using the UTAUT 2 Framework. *International Journal of Innovations & Research Analysis*, 04(03(I)), 141–147. [https://doi.org/10.62823/ijira/4.3\(i\).6889](https://doi.org/10.62823/ijira/4.3(i).6889)
- Mushi, R. M. (2024). Assessing the acceptance of mobile phone technology in Tanzanian SMEs. *Journal of Electronic Business & Digital Economics*, 3(2), 170–183. <https://doi.org/10.1108/jebde-10-2023-0026>
- Namahoot, K. S., & Jantasri, V. (2023). Integration of the UTAUT model in Thailand's cashless payment system adoption: the mediating roles of perceived risk and trust. *Journal of Science and Technology Policy Management*, 14(4), 634–658. <https://doi.org/10.1108/JSTPM-07-2020-0102>
- Nkwabi, J. M., & Mboya, L. B. (2019). A Review of Factors Affecting the Growth of Small and Medium Enterprises (SMEs) in Tanzania. *European Journal of Business and Management*. <https://doi.org/10.7176/ejbm/11-33-01>
- Nyamwesa, A. (2025). Cloud Computing Technology Adoption: Challenges for SMEs, A Case of Selected SMEs in Tanzania. *International Journal of Advanced Business Studies*, 3(2), 1–12. <https://doi.org/10.59857/ijabs.3118>
- Restrepo-Morales, J. A., Ararat-Herrera, J. A., López-Cadavid, D. A., & Camacho-Vargas, A. (2024). Breaking the digitalisation barrier for SMEs: a fuzzy logic approach to overcoming challenges in business transformation. *Journal of Innovation and Entrepreneurship*, 13(1). <https://doi.org/10.1186/s13731-024-00429-w>
- Saghiri, A. M., Vahidipour, S. M., Jabbarpour, M. R., Sookhak, M., & Forestiero, A. (2022). A Survey of Artificial Intelligence Challenges: Analysing the Definitions, Relationships, and Evolutions. *Applied Sciences (Switzerland)*, 12(8). <https://doi.org/10.3390/app12084054>
- Tongora, E. F. (2022). Factors Intricately Affecting the Adoption of e-Commerce by Small- and Medium-Sized Enterprises (SMEs) in Tanzania. *European Journal of Technology*, 6(3), 49–60. <https://doi.org/10.47672/ejt.1271>
- Tonya, E., & Samwel, E. (2025). Challenges Facing the Growth of Small and Medium Enterprises in Tanzania: A Case of Mbeya's Mwanjelwa Market. *African Journal of Accounting and Social Science Studies*, 6(2), 157–172. <https://doi.org/10.64717/ajass.v6i2.208>
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly: Management Information Systems*, 27(3), 425–478. <https://doi.org/10.2307/30036540>